

GOVERNMENT OF THE DISTRICT OF COLUMBIA

District Department of the Environment



December XX, 2012

Mr. Christopher Potter  
Director, Utilities and Power Plant Operation  
Architect of the Capitol  
25 E Street SE  
Washington, DC 20003

**RE: Permit (No. 6576) to Operate 203 MMBTU per Hour Boiler #3 at the Capitol Power Plant**

Dear Mr. Potter:

Pursuant to section 200.2 of Title 20 of the District of Columbia Municipal Regulations (20 DCMR), a permit from the District Department of the Environment ("DDOE" or "the Department") shall be obtained before any person can operate a stationary source in the District of Columbia. The application of the Architect of the Capitol (AOC) ("Permittee" or "Owner or Operator") to operate a 203 million Btu per hour natural gas and 0.5% sulfur content No. 2 fuel oil fired Wickes boiler #3, located at the Capitol Power Plant (CPP), 25 E Street SE, Washington, DC, has been reviewed.

Based on the submitted plans and specifications as detailed in the application dated February 10, 2012, and additional information submitted on March 14, 2012, March 28, 2012, September 28, 2012, October 23, 2012, November 3, 2012, and November 5, 2012, your application to operate is hereby approved subject to the following conditions:

**I. General Requirements:**

- a. The approval is issued pursuant to the applicable air pollution control requirements of 20 DCMR for the operation of the boiler.
- b. This permit expires on December XX, 2017. If continued operation after this date is desired, the owner or operator shall submit an application for renewal by September 18, 2017. [20 DCMR 200.4]
- c. Operation of equipment under the authority of this permit shall be considered acceptance of its terms and conditions.



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- d. The Permittee shall allow authorized officials of the Department, upon presentation of identification, to:
  - 1. Enter upon the Permittee's premises where a source or emission unit is located, an emissions related activity is conducted, or where records required by this permit are kept;
  - 2. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;
  - 3. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
  - 4. Sample or monitor, at reasonable times, any substance or parameter for the purpose of assuring compliance with this permit or any applicable requirement.
- e. This permit shall be kept on the premises and produced upon request.
- f. Failure to comply with the provisions of this permit may be grounds for suspension or revocation. [20 DCMR 202.2]
- g. Emergency situations shall be handled in accordance with the provisions of 20 DCMR 302.7(a) through (c).
- h. Within twelve (12) months from the date of this permit, the Permittee shall submit an application (or application amendment) to include the requirements of this permit in the facility's Chapter 3 (Title V) operating permit. [20 DCMR 301.1(a)(2)]
- i. This permit supersedes permit #4926, issued September 22, 2000.
- j. The Permittee shall comply with the requirements of 40 CFR 63, Subpart DDDDD as its compliance deadlines are reached, unless the Capitol Power Plant facility has become an area source of hazardous air pollutants, in which case the Permittee needs only comply with the requirements of 40 CFR 63, Subpart JJJJJ as referenced throughout this permit. If the facility becomes an area source of air pollutants before the first substantive compliance deadline of Subpart DDDDD is reached, and maintains that status, the Permittee is not required to comply further with the requirements of Subpart DDDDD.

II. Emissions Limitation:

- a. Emissions from boiler #3 shall not exceed the following emission rates [20 DCMR 201]:

<b>Pollutant</b>	<b>Emissions Burning Natural Gas (lb/hr)</b>	<b>Emissions Burning #2 Fuel Oil (lb/hr)</b>
Oxides of Nitrogen (NO <sub>x</sub> )	40.60	40.60
Carbon Monoxide (CO)	16.72	7.25
Volatile Organic Compounds (VOC)	1.09	0.29
SO <sub>2</sub>	0.12	107.08
Total Particulate Matter [PM(total)]*	1.51	4.79
Particulate Matter less than 10 microns (PM <sub>10</sub> )*	1.51	3.34
Particulate Matter less than 2.5 microns (PM <sub>2.5</sub> )*	1.51	2.25

\* Includes both condensable and filterable particulate matter.

- b. NO<sub>x</sub> emissions must not be greater than 0.20 lb per million BTU when burning natural gas and fuel oil #2 in the boiler as determined on a 30-day rolling average basis. [40 CFR 60.44b(a) and (i)]
- c. The NO<sub>x</sub> emission limit of Condition II(b) shall apply at all times including periods of startup, shutdown, or malfunction of the boiler. [40 CFR 60.44b(h)]
- d. Visible emissions whose opacity is in excess of ten percent (10%) (unaveraged), at any time shall not be permitted into the outdoor atmosphere. The visible emissions standard shall apply at all times, except: [20 DCMR 606.2]
1. Opacity not in excess of forty percent (40%) (unaveraged) shall be permitted for two (2) minutes in any sixty (60) minutes period and for an aggregate of twelve (12) minutes in any twenty-four (24) hours period other than during start-up of the equipment. [20 DCMR 606.2(a)]
  2. During start-up of equipment, opacity not in excess of forty percent (40) (averaged over six (6) minutes) shall be permitted for an aggregate of five (5) times per start-up; and [20 DCMR 606.2(b)]
  3. In addition to the emissions permitted under § 606.2(a), during shutdown of equipment, opacity not in excess of fifteen percent (15%) (unaveraged) shall be allowed and in addition, opacity not in excess of thirty percent (30)(averaged over three (3) minutes) shall be permitted for an aggregate of three (3) times per shutdown. [20 DCMR 606.2(c)]

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- e. Total suspended particulate matter emissions from boiler #3 shall not be greater than 0.05 pounds per million BTU. [20 DCMR 600.1]
- f. An emission into the atmosphere of odorous or other air pollutants from any source in any quantity and of any characteristic, and duration which is, or is likely to be injurious to the public health or welfare, or which interferes with the reasonable enjoyment of life or property is prohibited. [20 DCMR 903.1]  
*Note: This condition is District enforceable only.*
- g. In addition to complying with the requirements of this permit document, the Permittee shall comply with all Plantwide Applicability Limits (PALs) established for the facility.

**III. Operational Limitations:**

- a. The Permittee shall burn only natural gas and #2 fuel oil with sulfur content of less than 0.5% by weight in the unit. Distillate oil other than fuel oil #2 shall be permitted as long as the fuel meets the fuel sulfur requirements above and the boiler is designed to use the type of fuel and its use does not conflict with the recommendations of the manufacturer of the boiler or its appurtenances. [20 DCMR 201]
- b. The consumption of fuel shall be limited to 1,069,730 gallons of #2 fuel oil and 748.80 MMSCF of natural gas per year. [20 DCMR 201]
- c. At all times, including periods of startup, shutdown, and malfunction, the owner shall, to the extent practicable, maintain and operate the units in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating procedures are being used will be based on information available to the DDOE which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.4333(a) and 20 DCMR 201]
- d. The boiler shall be operated at all times in a manner consistent with the manufacturer's specifications for the equipment. [20 DCMR 201]
- e. The Permittee shall perform tune-ups on the unit annually. The first tune-up must be performed by March 21, 2013. Subsequent tune-ups must be conducted prior to May 1<sup>st</sup> of each year. [40 CFR 63.11201(b) and 63.11223(a) and 20 DCMR 805] *Note that this is a streamlined permit condition. 20 DCMR 805 requires*

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*annual tune-ups, while 40 CFR 63, Subpart JJJJJJ requires less frequent tune-ups, but provides more specifics on what is required to complete a tune-up.*

- f. In order to demonstrate continuous compliance, the tune-up shall be performed to meet the following criteria: [40 CFR 63.11223(b) , 20 DCMR 201, and 20 DCMR 805.8(a)]
  1. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, but you must inspect each burner at least once every 36 months).
  2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
  3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly.
  4. Minimize total emissions of NO<sub>x</sub> and, to the extent practicable, optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available.
  5. Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made).
  6. If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.

**IV. Monitoring and Testing:**

- a. The Permittee shall calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) for measuring the emissions of NO<sub>x</sub>, opacity, and carbon dioxide (CO<sub>2</sub>) or oxygen (O<sub>2</sub>) discharged into the atmosphere, and record the output of the system pursuant to 40 CFR 60.48b(b)(1). [20 DCMR 501, 502.10, and 805.5]
  1. The CEMS must meet the applicable performance specifications in Appendix B of 40 CFR 60.
  2. The Permittee shall follow the requirements of 40 CFR 60.48b(e) and (f) for the installation, evaluation, and operation of the NO<sub>x</sub> CEMS.

3. The Permittee must certify and operate the installed continuous NO<sub>x</sub>, CO<sub>2</sub> or O<sub>2</sub> emissions monitoring system and continuous opacity monitor and perform quality assurance procedures outlined in 40 CFR Part 60, Appendix F to maintain certification of the CEMS.
- b. To show compliance with Condition III(a), the Permittee shall sample and test the fuel oil burned in its fuel burning equipment at least once each calendar quarter or at the time of each fuel delivery, whichever is less frequent. For each sample, the Permittee must provide [20 DCMR 502]:
  1. The fuel oil grade;
  2. The weight percent sulfur of the fuel oil as determined using ASTM test method D-4294, ASTM test method D-5453, ASTM test method D-7039, or other method approved by the Department;
  3. The date and time the sample was taken;
  4. The name, address, and telephone number of the laboratory that analyzed the sample; and
  5. The type of test or test method performed.

In lieu of sampling and testing fuel oil each quarter for each of these data, the Permittee may obtain these data from the fuel oil supplier at the time of delivery and submit fuel receipts and fuel supplier certifications for all fuel deliveries that provide all of the above quality of fuel data as well as the name of the fuel oil supplier, the date of delivery, a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil (see 40 CFR 60.41c), and the sulfur content of the oil.

Note that the sulfur content data obtained from the fuel supplier must be the results of specific tests of the fuel at hand. General fuel specifications are not acceptable for this datum.

If any of these data cannot be obtained from the fuel supplier, it is the responsibility of the Permittee to sample the fuel and have it analyzed to obtain the required data.

*Note that while the conditions of Title V permit #033, dated April 14, 2000 are in effect, more frequent and comprehensive fuel testing than the above for this equipment may be required for the facility to maintain full compliance. Where the*



*Title V permit is more stringent, the conditions of the Title V permit supersede the conditions of this permit.*

- c. Within eighteen (18) month of the issuance of this permit, the Permittee shall conduct performance tests on the boiler to determine compliance with Conditions II (a) (except NO<sub>x</sub> and SO<sub>2</sub>) and (e) and shall furnish the DDOE with a written report of the results of such performance test in accordance with the following requirements [20 DCMR 502 and 40 CFR 60]:

1. One (1) original and one (1) copy of the test protocol shall be submitted to the following address a minimum of thirty (30) days in advance of the proposed test date. The test shall be conducted in accordance with Federal and District requirements.

Chief, Compliance and Enforcement Branch  
Air Quality Division  
1200 First Street NE, 5<sup>th</sup> Floor  
Washington, DC 20002

2. The test protocol shall be approved by DDOE prior to initiating any testing. Upon approval of the test protocol, the Permittee shall finalize the test date with the assigned inspector in the Compliance and Enforcement Branch. DDOE must have the opportunity to observe the test for the results to be considered for acceptance.
3. The final results of the testing shall be submitted to DDOE within sixty (60) days of the test completion. One (1) original and one (1) copy of the test report shall be submitted to the address in Condition IV(c)(1) above.
4. The final report of the results shall include the emissions test report (including raw data from the test) as well as a summary of the test results and a statement of compliance or non-compliance with permit conditions to be considered valid. The summary of results and statement of compliance or non-compliance shall contain the following information:
  - i. A statement that the owner or operator has reviewed the report from the emissions testing firm and agrees with the findings.
  - ii. Permit number(s) and condition(s) which are the basis for the compliance evaluation.
  - iii. Summary of results with respect to each permit condition.
  - iv. Statement of compliance or non-compliance with each permit condition.

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5. The results must demonstrate to DDOE's satisfaction that the emission unit is operating in compliance with the applicable regulations and conditions of this permit; if the final report of the test results shows non-compliance the owner or operator shall propose corrective action(s). Failure to demonstrate compliance through the test may result in enforcement action.
- d. The boiler must have a one-time energy assessment performed by a qualified energy assessor by March 21, 2014. An energy assessment completed on or after January 1, 2008 that meets or is amended to meet the energy assessment requirements of this condition satisfies the energy assessment requirement. The energy assessment must include [20 DCMR 201, 40 CFR 63.11196(a)(3), 63.11201(b), and Table 2 of Subpart JJJJJ]:
  1. A visual inspection of the boiler system,
  2. An evaluation of operating characteristics of the facility, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints,
  3. Inventory of major systems consuming energy from affected boiler(s),
  4. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,
  5. A list of major energy conservation measures,
  6. A list of the energy savings potential of the energy conservation measures identified, and
  7. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.

#### **V. Record Keeping and Reporting Requirements:**

- a. All records and related support information required pursuant to the Condition V of this permit shall be maintained at the facility for a period of five (5) years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records may be kept in electronic formats as long as such records can be certified as to their accuracy and validity. [20 DCMR 500.8 and 20 DCMR 302.1(c)(2)(B) and 40 CFR 60.49b(o)] *Note that this is a*



*streamlined condition requiring that the records be maintained for the longest period required by the cited regulatory sections.*

- b. The Permittee shall keep records of the NO<sub>x</sub> and O<sub>2</sub> (or CO<sub>2</sub>) CEMS data for all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments. [40 CFR 60.48b(c)]
- c. The 1-hour average NO<sub>x</sub> emission rates measured by the continuous NO<sub>x</sub> monitor shall be expressed in lb/MMBTU heat input and shall be used to calculate the average emission rates to document the compliance status with respect to Condition II(b). The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13(h)(2). [40 CFR 60.48b(d)]
- d. The Permittee shall maintain all records of opacity measurements obtained with the use of the required continuous opacity monitoring system (COMS) required pursuant to Condition IV(a).
- e. The Permittee shall maintain all records of the results of all emissions testing obtained pursuant to the requirements of Condition IV(d) of this permit.
- f. The Permittee shall maintain records of fuel information obtained pursuant to Condition IV(b) and shall submit the most recent quarter's data (or previous data, if no delivery or testing occurred that quarter) with the quarterly reports required by Title V permit #033.
- g. The Permittee shall maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor, as defined in 40 CFR 60.41b, individually for distillate oil and natural gas for each reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. [40 CFR 60.49b(d)(1)] The fuel usage data collected and recorded shall also be maintained in a 12-month rolling sum format and used to document compliance with Condition III(b).
- h. The Permittee shall maintain records of the following information regarding operations of Boiler #3 [40 CFR 60.49b(g)] and shall submit reports of these data [40 CFR 60.49b(i)]:
  - 1. Calendar date of operation;
  - 2. The average hourly NO<sub>x</sub> emission rates (expressed as NO<sub>2</sub>) (lb/MMBTU heat input) measured or predicted;

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3. The 30-day average NO<sub>x</sub> emission rates (lb/MMBTU heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days;
  4. Identification of the steam generating unit operating days when the calculated 30-day average NO<sub>x</sub> emission rates are in excess of the NO<sub>x</sub> emission standards under Condition II(b), with the reasons for such excess emissions as well as a description of corrective actions taken;
  5. Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;
  6. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;
  7. Identification of "F" factor used for calculations, method of determination, and type of fuel combusted;
  8. Identification of the times when the pollutant concentration exceeded full span of the CEMS;
  9. Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3 (40 CFR 60, Appendix B); and
  10. Results of daily CEMS drift tests and quarterly accuracy assessments as required under 40 CFR 60, Appendix F, Procedure 1.
- i. The Permittee shall submit semiannual excess emission reports for any excess emissions of NO<sub>x</sub> that occurred during the reporting period. [40 CFR 60.49b(h), 40 CFR 60.7(c), and 20 DCMR 500.1] For the purposes of this condition, excess emissions are defined as any calculated 30-day rolling average NO<sub>x</sub> emission rate that exceeds the emission limit of Condition II(b). Excess emission reports shall be submitted to coincide with the semi-annual reports required by the facility's Chapter 3 (Title V) operating permit.
  - j. The Permittee shall maintain onsite and submit, if requested by the EPA Administrator or the Department, a biennial report containing the information in Conditions V(j)(1) through (3) below. [40 CFR 63.11223(b)(6) and 20 DCMR 201]

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1. The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured before and after the tune-up of the boiler.
  2. A description of any corrective actions taken as a part of the tune-up of the boiler.
  3. The type and amount of fuel used over the 12 months prior to the biennial tune-up of the boiler.
- k. Upon triggering applicability, submit an "Initial Notification of Applicability" to the EPA Administrator with respect to the applicability of 40 CFR 63, Subpart JJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources as required by 40 CFR 63.11225(a)(4).
- l. Submit a biennial compliance report containing the following information with the annual Title V compliance certification by March 1, 2013 and every two years thereafter [40 CFR 63.11225(b)]:
1. Permittee name and address;
  2. Statement by a responsible official, with the official's name, title, phone number, e-mail address, and signature, certifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart; and
  3. If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

The inclusion of the information required in Conditions V(l)(1) through (3) as part of the Title V annual compliance report shall satisfy the requirements of 40 CFR 63.11225(b).

- m. The Permittee must keep a copy of each notification and report that was submitted to comply with 40 CFR 63, Subparts DDDDD and JJJJJ and this section and all documentation supporting any Initial Notification or Notification of Compliance Status that was submitted. [40 CFR 63.7555(a)(1) and 40 CFR 63.11225(c)(1)]
- n. The Permittee must keep records to document compliance with the requirements of Conditions III(e) and (f) as follows [40 CFR 63.11225(c)(2) and 20 DCMR 500.1]:

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1. Records must identify boiler #3, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned and the following:
  - i. The date on which the combustion process was last adjusted;
  - ii. The name, title, affiliation of the person who made the adjustment;
  - iii. The NO<sub>x</sub> emission rate, in ppmvd, after the adjustments were made;
  - iv. The CO emission rate, in ppmvd, after the adjustments were made;
  - v. The CO<sub>2</sub> concentration, in percent (%) by volume dry basis, after the adjustments were made;
  - vi. The O<sub>2</sub> concentration, in percent (%) by volume dry basis, after the adjustments were made; and
  - vii. Any other information which the District may require in writing related to the tune-up.
2. Records documenting the fuel type(s) used monthly by boiler #3, including, but not limited to, a description of the fuel, including whether the fuel has received a non-waste determination by the Permittee or EPA, and the total fuel usage amount with units of measure.
  - o. The Permittee must keep records of the occurrence and duration of each malfunction of Boiler #3, or of any associated air pollution control and monitoring equipment. [40 CFR 63.11225(c)(4) and 20 DCMR 500.1]
  - p. The Permittee must keep records of all actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR 63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation. [40 CFR 63.11225(c)(5) and 20 DCMR 500.1]
  - q. The Permittee must submit to the EPA Administrator a signed certification in the Notification of Compliance Status report that an energy assessment of each boiler and its energy use systems was completed in accordance with 40 CFR 63, Subpart JJJJJ. The Permittee must also submit, upon request, the energy assessment report. [40 CFR 63.11214(c) and 20 DCMR 500.1]

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If you have any questions, please call me at (202) 535-1747 or Abraham T. Hagos at (202) 535-1354.

Sincerely,

Stephen S. Ours, P.E.  
Chief, Permitting Branch

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